

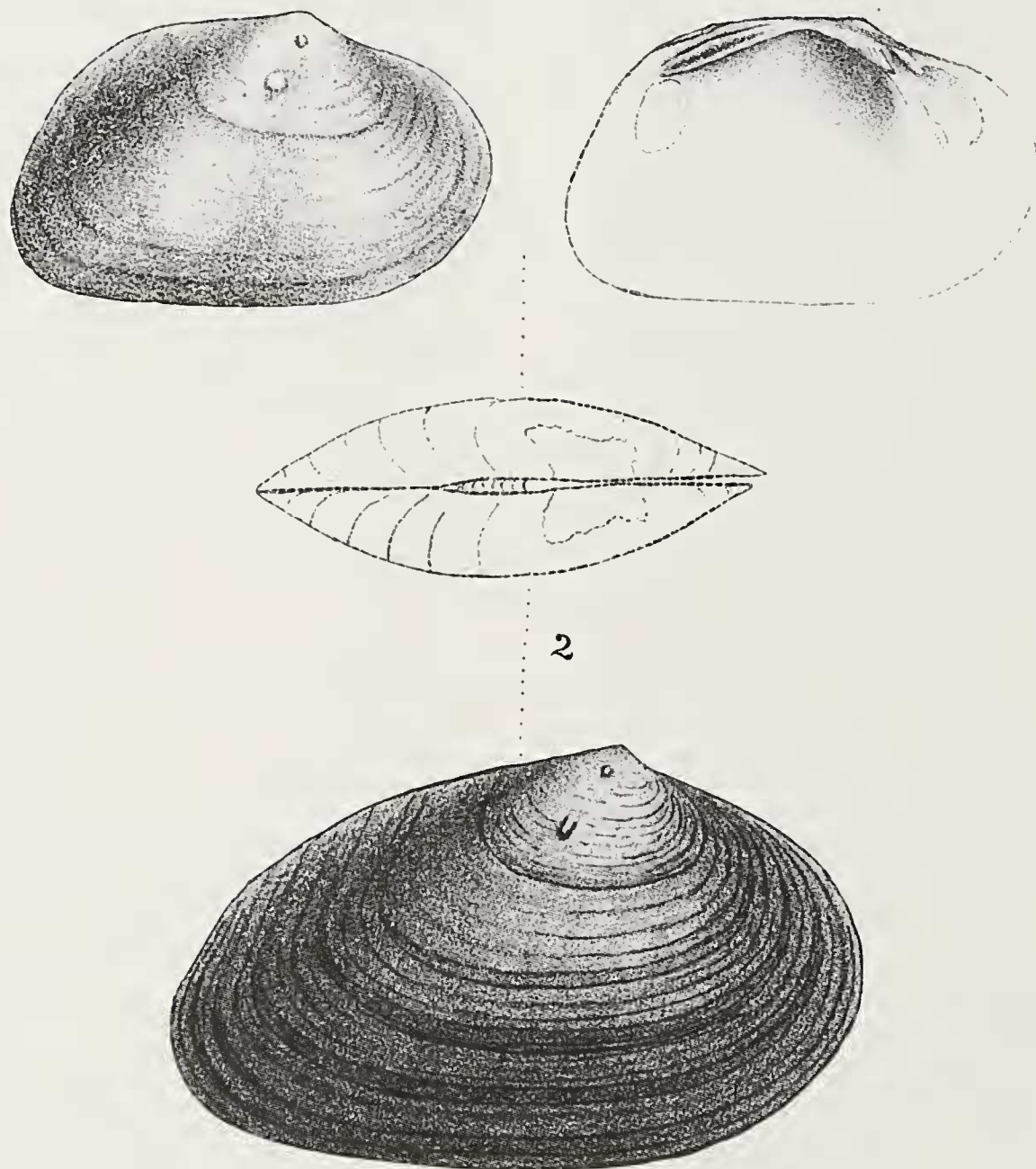
Note

Designation of a lectotype for *Parvaspina collina* (Conrad, 1836) (Bivalvia: Unionidae)

Perkins et al. (2017) erected a new genus, *Parvaspina*, for two species with spines formerly placed in *Elliptio* and *Pleurobema*. Based on genetic information, *Elliptio steinstansana* (Johnson and Clarke, 1983) and *Pleurobema collina* (Conrad, 1836) were transferred to *Parvaspina*.

Unio collinus Conrad, 1837[sic] was designated the type species of the new genus (Perkins et al., 2017). They noted the lectotype was ANSP 41007. They did not cite the revisionary work of Johnson (1970) nor mention the lectotype designation as presented by Johnson and Baker (1973:151) or Graf and Cummings (2017).

In his Monography, Conrad (1835–1840), figured what appears to be three specimens of *Unio collinus* before the text description was published (Conrad, 1836f (No. 7)): pl. 36, fig. 2). This plate is dated 1836, so the taxon takes this



1. *Unio occidentalis*, C. 2. *U. collinus*, Con.

Figure 1. Original illustrations of *Unio collinus* in Conrad (1836: pl. 36 fig. 2).

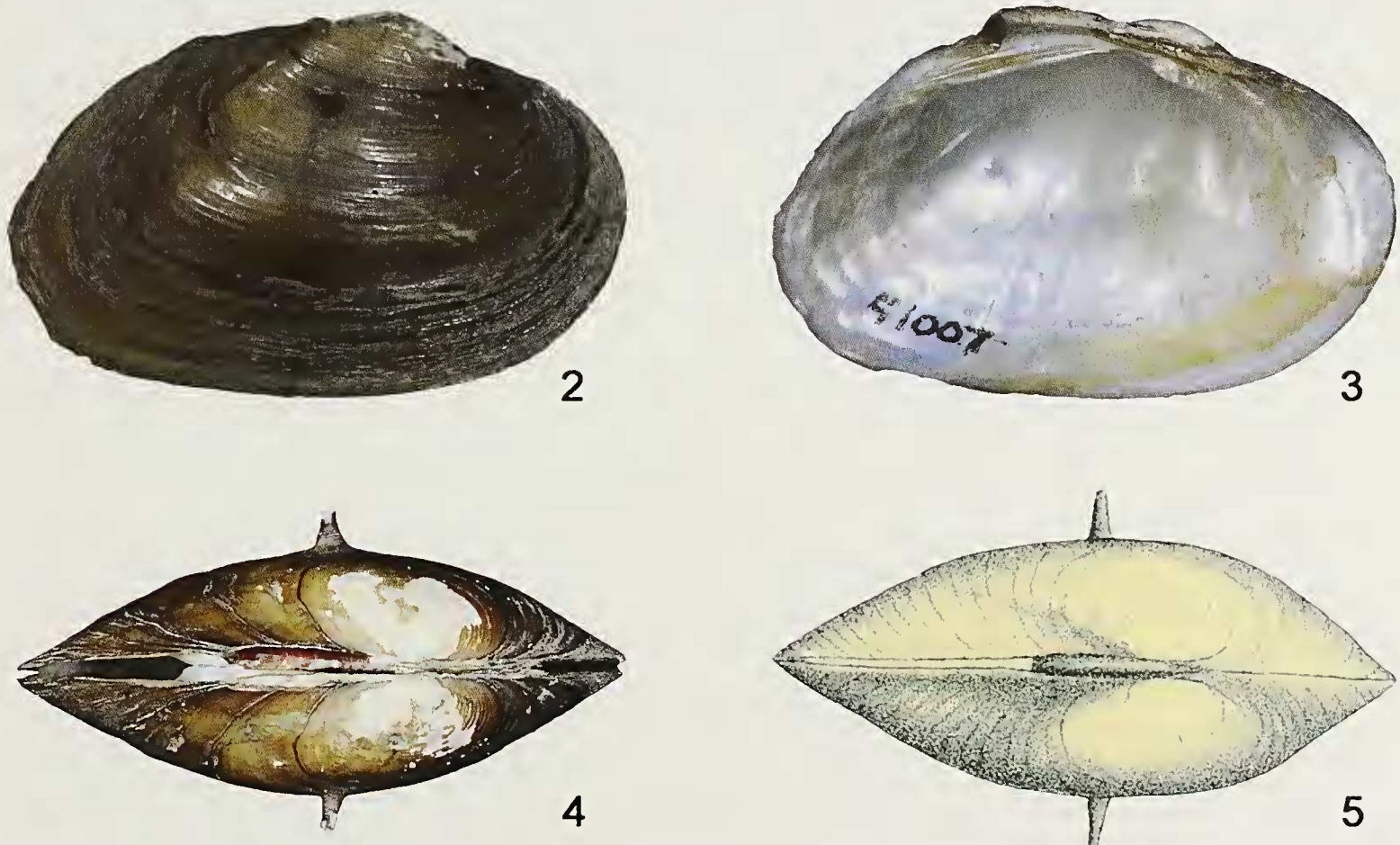
date of publication. This is an indication and is the first use of the name *Unio collinus*. Conrad's pl. 36, fig. 2 (Figure 1) is interpreted as representing all three of his original syntype specimens: the two figures in the top row are one specimen; the dorsal view in the middle row shows an eroded umbo area without any evidence of spines is a second specimen and the bottom figure of the outside of the right valve is the third specimen.

Lectotype Designation: Conrad (1837a (No. 8):65) in the Monography described *Unio collinus* and mentioned he had three specimens and referred to pl. 36, fig. 2, citing the catalog number "Cab. ANSP No. 20408". Subsequently, he remarked "since the publication of this species in a former number of this work, I have received a few specimens from the same locality with the first described, which present the very remarkable character of spines" (Conrad, 1840a (No. 12):109–110, pl. 60, fig. 3). No catalog number was listed for these new specimens. One of these new specimens was figured in pl. 60, fig. 3 (Conrad 1840a) (Figure 5). The problem is that the specimens later received and figured are topotypes identified by the author of the species, not part of the original type series (See Articles 74.1; 74.2). Johnson (1970: 300) noted the type lot, ANSP 20408, was lost and observed "this subsequently figured metatype, here selected, lectotype ANSP 41007." The IUCN Code does not recognize the term *metatype*. This topotypic lot was not part of the original type series and as such cannot be used as a source for

designating a lectotype. Therefore, Johnson's (1970) lectotype designation is invalid. The original figure of Conrad (1836f: pl. 36, fig. 2) can be used to designate the lectotype even if the specimens are lost (see Code Articles 74.1, 74.2, 74.4). Fig. 2 of pl. 36, assigned museum number ANSP 20408, represents the valid syntype series, even if the specimens are lost. **The top two valves in Conrad's fig. 2 (see Figure 1) are here designated the lectotype for *Unio collinus* Conrad, 1836 (see Code Article 74.4).**

The catalog number ANSP 20408 was listed for the original type series by Conrad (1837a:65). This number is not a Malacology Department number. The ANSP Malacology Department did not begin assigning catalog numbers until 1889. The invalid lectotype ANSP 41007 is in the collection and identified as *Unio collinus*. Rosenberg remarked "I suspect that there was an early ledger where catalogue numbers were assigned to items across the Academy, since in the 1830's we didn't have formal departments. If there was such a ledger, however, it no longer exists." (Gary Rosenberg, Pers. Comm.).

Parvaspina collina, ANSP 41007, was designated as a lectotype (Figures 2–4), but does not match any of the original figures by Conrad (Figure 1), more closely resembling the subsequent figure by Conrad (see Figures 4 and 5). The ANSP 41007 specimen has Rockbridge County written in pencil on the inside of the left valve, and has some dried tissue on the inside of the shell (Figure 3), but lacks a catalog number written in the shell. Rockbridge County is



Figures 2–5. *Parvaspina collina* (Conrad) ANSP 41007 invalid lectotype. **2.** External surface of right valve. **3.** Internal surface of left valve. **4.** Dorsal view of paired valves. **5.** Original illustration of *Unio collinus* in Conrad (1840: pl. 56, fig. 3).

listed in the type locality. It has been suggested that the specimen catalogued today as ANSP 41007 was part of the original type series. However, comparison of the valves of the ANSP 41007 specimen (Figures 2–4) with the illustration of Conrad's type figures (Figure 1), makes it clear that the catalogued specimen was not one originally illustrated in Conrad's pl. 36 fig. 2 (Figure 1). It does resemble Conrad's later pl. 56, fig. 3 (Figure 5). This being the case, then ANSP 41007 is a topotype and not part of the original type series.

ACKNOWLEDGMENTS

Ms. Jamie M. Smith and Mrs. Cindy M. Bogan both reviewed an earlier draft of this note. Ms. Ellen Wildner is thanked for her help with the ANSP Collection and Ms. Krasimira Seizova took the pictures of the invalid type specimen, both from the Malacology Department, Academy of Natural Sciences of Drexel University, Philadelphia. Dr. Gary Rosenberg, Malacology Department, Academy of Natural Sciences of Drexel University, Philadelphia, was a reviewer and provided valuable direction and suggestions to improve and clarify this manuscript.

LITERATURE CITED

- Conrad, T.A. 1835–1840. Monography of the family Unionidae, or naiades of Lamarck, (fresh water bivalve shells) of North America, illustrated by figures drawn on stone from nature. J. Dobson, Philadelphia. Part 1(1835):1–12 [pages 13–16 not published], pls. 1–5; Part 2(1836a):17–24, pls. 6–10; Part 3(1836b):25–32, pls. 11–15; Part 4(1836c):33–40, pls. 16–20; Part 5(1836d):41–48, pls. 21–25; Part 6(1836e): 49–56, pls. 26–30; Part 7(1836f):57–64, pls. 32–36; Part 8 (1837a):65–72, pls. 36–40; Part 9(1837b):73–80, pls. 41–45; Part 10(1838a):81–94, pls. 46–51; Part 11(1838b):95–102, pls. 52–57; Part 12(1840a):103–110, pls. 58–60; Part 13 [1840b, Part 13 not dated]:111–118, pls. 61–65.
- Graf, D. and K. Cummings. Mussel-project webpage: <http://mussel-project.uwsp.edu/> [accessed 18 April 2017].
- International Commission on Zoological Nomenclature. 2017 International code of zoological nomenclature. Fourth edition. <http://www.iczn.org/iczn/index.jsp> [accessed 25 April 2017].
- Johnson, R.I. 1970. The systematics and zoogeography of the Unionidae (Mollusca: Bivalvia) of the southern Atlantic Slope Region. *Bulletin of the Museum of Comparative Zoology* 140: 263–450.
- Johnson, R.I. and H.B. Baker. 1973. The types of Unionacea (Mollusca: Bivalvia) in the Academy of Natural Sciences of Philadelphia. *Proceedings of the Academy of Natural Sciences of Philadelphia* 125(9): 145–186, pls. 1–10.
- Johnson, R.I. and A. H. Clarke. 1983. A new spiny mussel, *Elliptio (Canthyria) steinstansana* (Bivalvia: Unionidae), from the Tar River, North Carolina. *Occasional Papers on Mollusks, Harvard University, Museum of Comparative Zoology* 4(61): 289–298.
- Perkins, M.A., N.A. Johnson, and M.M. Gangloff. 2017. Molecular systematics of the critically-endangered North American spinymussels (Unionidae: *Elliptio* and *Pleurobema*) and description of *Parvaspina* gen. nov. *Conservation Genetics* DOI 10.1007/11-592-017-924-z.

Arthur E. Bogan

North Carolina Museum of Natural Sciences
11 West Jones Street
Raleigh, NC 27601 USA
Arthur.Bogan@naturalsciences.org